

ABSTRACT

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A marine riser that includes active boundary-layer control ("BLC") for reducing hydrodynamic drag and vortex-induced-vibration ("VIV") caused by currents. The marine riser includes at least one riser pipe surrounded by a BLC sheath. Extending through the sheath is at least one nozzle, preferably at least one pair of slot-nozzles, for discharging water into the sea in which the marine riser is deployed. The BLC sheath may be rotate-able to align a pair of slot-nozzles with the current direction, or in a fixed BLC sheath, pairs of slot-nozzles may be selectively activated based on the current direction. The BLC sheath may also include a tail-jet or retractable tail-fin. The BLC sheath may be formed from telescoping sections that decrease in diameter toward the bottom of the riser and that are nested when the telescoping sheath is retracted. Finally, a BLC system for a production riser system is disclosed.

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